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ABSTRACT

Competition exists when vendors of a service are available to meet the demands of customers. In the education sector, parents and children are consumers, and schools and districts are the suppliers. Theoretically, more competition should translate into higher quality schooling and enhanced educational outcomes. This digest reviews the literature that examines the relationship between competition and quality. In the U.S., parents may choose between public-schooi districts, among public-school districts, and among public schools within a given district. Generally, when there are more choices, there is more competition. Measuring competition's effect on educational outcomes, however, is not clear-cut. Measures include the Herfindahl Index, percentage of students in private schools, and student test scores. Greater competition raises test scores, but only modestly. It seems to improve educational attainment (years in school), increase graduation rates, and raise students' future earnings. This evidence needs to be considered carefully because bias may exist from cross-sectional experimental research design, and also from double-counting findings or overestimating effects. Increasing competition may raise effectiveness and efficiency of public schools, though not dramatically. Equity issues must be considered. If low-income families benefit most, then these reforms may be redistributive. (RT)

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The Effects of Competition on Educational Outcomes

By Clive R. Belfield

Competition exists when multiple providers of a service, who all must adhere to the same legal rules and regulations, are available to meet the demands of consumers. In economic theory, when there is more competition among providers, prices consumers pay for services are lower. In addition, suppliers must accept lower profits, resulting in the survival of only the most efficient ones. In the education sector, where "consumers" are parents/children and "suppliers" are schools/districts, theoretically, more competition should translate into higher quality schooling and enhanced educational outcomes.

This Digest reviews the sizeable body of literature that examines the relationship between competition and quality. It looks at various measures of competition, and considers a range of outcomes that might be enhanced. It also evaluates the reliability and validity of this evidence. Finally, the Digest makes some policy recommendations.

The research reviewed here examines competition among U.S. schools and school districts. The research spans thirty years, from 1972 to 2002, and includes only studies with an explicit measure of competition. Essentially, the review focuses on the link between educational outcomes and competitive pressures across geographical areas, and it uses large-scale cross-sectional datasets. This yields 41 distinct empirical papers, employing over 400 individual tests.

What Does "Competition" in the Education Sector Mean?

An education market exists whenever parents have a "choice set" of providers. In the U.S., parents may choose (1) between public and private schools, (2) among public school districts, and (3) among public schools within a given district (Teske and Schneider 2001).

Generally, when there are more choices, there is more competition. Therefore, by counting the range of choices across the domains, it is possible to gauge the extent of competitive pressures. However, the process is not this straightforward because not all choices are available, or equally salient, to all parents. Non-Catholic families may not see Catholic schools as an option. Private schools charge fees. Many small, rural districts consist of only one school, so choosing another school may mean relocating. Also, some families may have ample choice in one domain (many public schools to pick from) but not in another (no private schools nearby).

Finally, the presence of many choices does not necessarily ensure greater competition. Local schools may be so similar that it does not matter which site is selected, or schools may agree not to compete.

Conventionally, competition is measured by the Herfindahl Index, which is the sum of the squares of per-unit enrollments over total enrollments, where the units are typically schools within a district (Borland and Howson 1993). If there are several schools in a district, the Index value is close to 0; as the number of schools drops, the Index moves closer to 1. So, the higher the Index value, the less competitive the market.

A second measure of competition used in the literature is the percentage of students in private schools. When there are more private-school spaces available, parents can more easily remove their children from public school. To prevent or stop an exodus of students, these public schools are under greater pressure to offer high-quality education.

Greater competition may have varied effects. It may enhance students' motivation, effort, and interest if it allows them to enroll at a school that better suits their preferences. It may improve a school's productivity, leading to better teacher selection. Overall, education systems should be more efficient, likely leading to more positive outcomes. But competition's effect on costs/expenditures is ambiguous, because if families value high-quality education, they may demand more of it, which in turn raises expenditures.

The impact of competition is evaluated using test scores and other educational outcomes. To assess these impacts, a simple test is applied to each piece of evidence: What would be the predicted effect on educational outcomes if competition were increased by 1 standard deviation? One standard deviation represents a fairly big increase in competition (about 10 percent of students per county attend private school; an increase of 1 standard deviation would raise that to around 15 percent). The test nevertheless allows for a consistent evaluation of competitive pressures.

Does More Competition Raise Test Scores?

Competition may improve outcomes by raising test scores. Such achievement measures are important to parents, and can be used to hold schools accountable. Evidence from over 200 tests in 25 separate studies shows that competition does often have a modest beneficial effect on the academic outcomes of students in public schools. In many cases, test scores were higher where there was more competition.

Studies identified this effect for each of the three choice domains, using competition measures such as the Herfindahl Index, the percentage of private-school enrollments, or other specific indicators. Correlations were made with test scores across many grades and for a range of school subjects. Evidence was drawn from across the U.S., at state, county, and district levels; individual student data were also used.

However, the effects of competition are modest. Approximately three-fifths of the tests show no correlation between competition and test scores (only a trivial number found evidence of a negative relationship). The average effect of increasing competition by 1 standard deviation is to raise academic test scores in public schools by approximately 0.1 standard deviation.

Does More Competition Improve Education in Other Ways?

Competition may enhance the performance of schools in other ways. This review identified 47 studies (over 220

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tests) that used alternative performance criteria. Again, the studies used various measures of competition, with evidence across the three choice domains. Generally, these studies also show competition is beneficial.

A number of studies correlate competition with educational attainment (years of schooling). If competition motivated schools to offer a better education, students may respond by remaining enrolled or by applying to college in greater numbers. Thus, the studies use either dropout rates, graduation rates, or college-attendance figures to shed light on the effects of competition. Although competition doesn't appear to affect dropout rates, an increase of 1 standard deviation in competition from private schools raises graduation rates in public schools by approximately 0.08 to 0.18 standard deviation.

Eleven studies examine the relationship between competition and educational expenditures. More efficient districts operating in a competitive market may be allocated either higher subsidies (because they can produce more education) or lower funding (because they need less to produce a given amount). Unsurprisingly, no clear link between educational expenditures and competition is evident.

Theoretically, competition should raise efficiency in the education sector (Hoxby 2000). Indeed, the evidence above suggests this: Competition raises test scores, but with no additional expenditures. Direct evidence from 13 studies shows that an increase of 1 standard deviation in private-school enrollments raises public-school efficiency by as much as 0.2 standard deviation.

Greater competition may also influence how much teachers are paid. Available studies indicate teacher salaries are higher with more competition. An increase of 1 standard deviation in competition raises teacher salaries by around 0.1-0.3 standard deviation. Working conditions may also improve. When competition from private schools exist, the evidence suggests that class size in public schools is smaller.

Finally, initial evidence from three studies suggests that when competition among schools is 1 standard deviation higher, the students' future earnings are higher by around 0.1 standard deviation (or 1 to 4 percent above average earnings).

How Reliable and Valid Is the Evidence on Competition?

The results generally suggest that modest gains in achievement and other school-quality measures result from greater competition. Several cautions regarding the reliability and validity of this evidence must be noted, however.

First, there may be biases in the estimation method. All the datasets used were cross-sectional, not derived from an experimental research design. Educational quality and competition may be determined simultaneously: Where school quality is low, more families choose private schools, so it only appears that competition influences school quality. Also, the studies may have insufficiently controlled for other factors, such as the financial status of the district. Both biases raise the likelihood that the relationship between competition and quality is correlational, not causal. Nonetheless, direct investigations of these biases find that alternative estimation methods do not offer much advantage.

Second, sensitivity tests may be applied to the key variables measuring competition and educational outcomes. Many studies report both significant and insignificant correlations, often for equally plausible models. This spread of results suggests that the effects of competition are sensitive to the model reported. It also raises the possibility that only studies with statistically significant results have been published. However, such publication bias is not easy to document.

Third, it is important not to double-count the findings or overestimate their significance. Some of these benefits may actually be the same benefit measured differently. So, where test scores are higher from competition, it may be expected that subsequent earnings will be higher, for example. And, the significance of these effects may be hard to estimate because they may not endure; the persistence of any competitive pressures is unknown.

What Are the Policy Implications of This Evidence?

Overall, the evidence discussed here suggests that increasing competition—either intradistrict, interdistrict, or from private schools—may raise effectiveness and efficiency of public schools, as well as address other educational objectives. The substantive effect will not be dramatic, but it will be in a positive direction. Before implementing a pro-competitive policy, however, legal and political conditions should be considered. Some state laws prevent subsidies to private schools, for instance, and some political groups are strongly opposed to competition.

The federal No Child Left Behind Act provides direct funding for choice programs. It also requires schools that are not making Adequate Yearly Progress or that are identified as unsafe to offer more choices, thus promoting competition and allowing parents to make more informed decisions. Other options are voucher programs or incentives to private schools (Howell and Peterson 2002). Decentralization or the subdivision of large school districts may also stimulate competition. Each of these reforms will have other consequences, too.

Although some studies establish benefits of competition, by and large they fail to consider any reorganizational costs required to promote competition. There is scant data on how much it costs to foster, regulate, and monitor competition, and on how to maintain competition. Competition reform requires money, and these financial costs of fostering competition must not be ignored. Since the 1940s, the number of school districts has been falling while the number of private schools has stayed largely constant; introducing competition would thus mean reversing a historic trend (Kenny and Schmidt 1994). Effecting an increase of 1 standard deviation in competition would require either large-scale reform to directly offset this trend toward larger districts or a clear incentive to private schools.

Finally, equity issues need to be considered. If low-income families benefit most, then such a reform may be redistributive. However, the financial burden placed on parents will depend on whether competition is encouraged through private schools or within public schools.

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